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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/558,544 11/16/95 YAMAZAKI

S 0756-1441

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EXAMINER

MINTEL, W	
ART UNIT	PAPER NUMBER

2811
DATE MAILED:

29
06/21/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/558544

Applicant(s)

Yamaguchi

Examiner

William Mintel

Group Art Unit

2811

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 2/5/01
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-40 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-40 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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1. The disclosure is objected to because of the following informalities: The specification contains grammatic or other errors. Examples are below. To be fully responsive to this action, applicant must make a bona fide attempt to correct any other errors. Page 1, line 45, "know", should be "known". Page 3, lines 65-66, "photoresponsibility" should be "photoresponsivity". Page 9, line 55, "is" should be "are". In the claims, claim 1, line 8, "film", should be "layer" to avoid a nonsequitur.

Appropriate correction is required.

2. Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for semi-amorphous semiconductor, does not reasonably provide enablement for amorphous or polycrystalline semiconductor. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. In other words, the specification explains that semi-amorphous semiconductor, for example silicon, has a Raman peak different from that for noncrystalline semiconductor, for example silicon, but leaves unanswered the question of whether ordinary amorphous silicon or polycrystalline silicon also have Raman peaks that differ from that of monocrystalline silicon.

3. The allowance of claims 1-40 is hereby withdrawn. This error is regretted.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

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5. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Morozumi (237).

7. In re claim 1, lines 1-2, the abstract, line 1, recites a solid state image sensor. In re claim 1, lines 3-5, Fig. 4 shows switch region 22-24-23 and light sensor region 30 connected to drain 23. In re claim 1, lines 6-9, column 5, line 63, to column 6, line 1, disclose that layers 22-24-23 and 30 can be made of the same amorphous or polycrystalline Si. The examiner asserts that amorphous Si or poly Si both yield a Raman peak different from that for mono Si.

8. In re claim 2, column 5, line 68, recites "and the like". In other words, Morozumi includes the well known hydrogen doped amorphous Si. In re claim 3, the abstract at line 4 recites a thin film transistor. In re claim 4, column 6, line 2, recites a PN junction. In re claim 9, column 4, lines 50-55, recite CMOS switch transistors. Claims 1-11 are rejected as above.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-5, 8-11, 13-19, 21-25, 27-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morozumi (237) in view of Yamazaki (987) et al..

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11. Morozumi is described above but lacks explicit use of semi-amorphous material. Yamazaki (987) et al. at column 1, lines 25-67, teaches increased photoelectric conversion efficiency of semi-amorphous Si and other benefits. Therefore, in re claim 1, because of Yamazaki, it would have been obvious to use semi-amorphous Si for the above reasons in the device of Morzumi. Claims 2-05, 8-11, 13-19, 21-25, 27-30 are rejected as above.

In re claims 31-40, there is insulation layer 25 of Morozumi, which is taken to be the blocking layer.

12. Claims 6, 7, 12, 20, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaki (663) in view of Yamazaki (9870).

13. Masaki in the English Abstract and Fig's 1-12 discloses an image sensor having side-by-side P and N photo sensing regions 17 and 18 and a CMOS driving section 2. The English abstract at line 1 under "constitution" recites poly Si, and so lacks semi-amorphous material. Yamazaki teaches use of semi-amorphous material for the reasons noted above. Therefore in re the above claims, it would have been obvious to use semi-amorphous material because of Yamazaki.

14. Newly cited and characterized by the examiner as merely of background interest is Oritsuki et al (168). Fig. 6 of Oritsuki shows a thin film transistor 69 adjacent PIN amorphous photodiode 60. However, electrodes 66, 67, 61, 62, 22a are metal not silicon. Previously recited, but recited again are Yamazaki for a PIN semi-amorphous photo detector lacking a switching transistor, and Takeshita for a switching transistor adjacent a photosensor, but using poly Si.

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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Mintel whose telephone number is (703) 308-4916. The examiner can normally be reached on Monday-Thursday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached on (703) 308-2772. The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Mintel/ds

06/13/01



William Mintel
Primary Examiner
Art Unit 2811